



### Readers, Rodders, and the Next Gen Racers

You would think that someone who has spent more than a quarter century in the automotive aftermarket and motorsports industry would have a very clear idea of the overall industry.

I thought I knew all about the custom car culture. After attending the Columbus Goodguys July event it was obvious my perspective was seriously antiquated.

Never had I seen so many personal transport expressions in one place at one time. Not even the SEMA Show could compete with this crowd. Inside the vendor building, my husband, Mick, made the observation that you could build a car from the ground up just by cruising the aisles.

The spirit spilled out of Ohio State Fairgrounds onto the streets where locals parked lawn chairs six-deep along the grassy medians of busy thoroughfares, hauled out coolers, cranked up portable tunes and settled down to watch a cavalcade of dazzling cars spanning nine

of people in a year that read my scribbling, let alone take time to comment. To meet so many and to have them ALL make positive comments was astonishing.

Folks, you humbled me.

The big gobsmacker was yet to come. Very helpful Goodguys Communications Director, John Drummond, asked me to attend the street machine and street rod awards ceremony. It was here that the association presented me with "Woman of the Year" honors commemorated with a bitchin' piece of original artwork created by Bob McCoy.

This honor recognizes a female industry executive who serves to preserve the integrity and growth of the hot rodding industry. Why me? The answers from Gary and Marc Meadors, made me realize that land speed racing is far more cherished in the Goodguys world than I ever realized.

I've been so damn busy promoting land speed racing to the general public that I had completely lost focus on the

a formidable bunch will come from the Buckeye state. David Cooke, 23, the fearless fact-filled project leader of the Buckeye Bullet 2 (BB2), the world's first hydrogen fuel cell powered land speed streamliner convinced me of that during my recent tour of the facility.

Students from OSU have already conquered the electric segment starting with the Formula Lightning Smokin' Buckeye. Powered by 31 lead acid batteries, the team could do a full pit stop/battery change in under 17 seconds. The car won a great deal of races and every national championship award.

Next came the Buckeye Bullet I, now the world's fastest electric powered streamliner with a SCTA national record of 314MPH in Class E/3 and the BNI International record at 271MPH. Pat Rummerfield still owns the FIA World Electric record at 245MPH with the White Lightning streamliner, but will tell you himself that the Bullet is the fastest electric car on earth.

lator, something no one, not even the experts, ever considered a problem area.

Repairs done and with a reconfigured system in place, the team wants to improve on its World Record. Noteworthy, no one was hurt which speaks to good engineering as much as it does luck.

The design spec for the car is around 350MPH, but the fuel cells have proven to be too heavy so the team will be stoked if they get anything over 315MPH, the record speed for the BB1.

The problem is that early on the team chose to use an exotic gas to push the oxygen through the fuel cells that has now tripled in price making test runs and dyno pulls rather pricey. Converting to a more cost efficient gas system is out of the question at this stage.

Nonetheless, CAR students are learning how to "hop-up" water droplets, the size, shape and sonic flow characteristics together with tricked out nozzle shapes that all contribute to a more efficient fuel cell. Further, the center is a

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cess of the program and oversees the project schedule, budget, sponsorship, interfaces with the college.

"I have a few design areas including body work, driveline maintenance, fire suppression, and wheels and tires," he said, "My biggest goal is to bring interested members to the team and help provide them with the most exciting and valuable experiences any engineering program has to offer. Being able to work endless hours and at the end seeing something truly amazing go speeding down the track at 300mph makes it all worth it!"

Robert (RJ) Kromer, 21, is the electrical team leader and is a senior in electrical & computer engineering whose major contribution is integrating a sophisticated software-based control system for the car while overseeing all vehicle electrical systems and related projects.

Managing the brakes and suspension as well as helping with fuel cell testing and modification is Rob Ewing, 21, the mechanical team leader who is starting his fourth year of study in mechanical engineering at OSU and his second on the buckeye bullet land speed race team.

Ed Hillstrom, 31, is a PhD Student in mechanical engineering who has worked on all three race car programs at different times. He advises on all mechanical systems and developed the vehicle's complex cooling system. In between his Masters and PhD program he spent four years at Chrysler in vehicle development.

Charles Shuff, 26, handles BB2 aerodynamics; he is a fourth-year aerospace engineering student and second year team member. He has been investigating internal air pressures and flow rates using computational fluid dynamics (CFD) and will now focus on reducing BB2's drag coefficient through body modifications including exhaust location, angle, and shape as well as methods to keep the flow attached throughout the aft of the body. Also on the list: air brakes and tire air drag reduction.

Responsible for data acquisition and inverter control is John Adzima, 22, a fourth year electrical engineering student and part of the electrical team for over a year.

Starting college at age 40, George Willard, 46, brought with him 20 years of welding and fabrication skills – exactly what the BB2 team needed at the time. Enrolled in the welding engineering; he also has a decade of racing dirt track sprint cars. Primary duties are welding and fabricating for the Bullet and its specialized transport vehicles.

Kevin Kaschube, 26, is part of the electrical team and is an undergrad electrical engineering student at OSU. He works with data acquisition implementing various sensors on the vehicle.

Luke Kelm, 19, is on the mechanical team and is a sophomore in mechanical engineering. New this year to the team, he is focusing on the addition of vehicle sensors such as wheel speed, ride height, and suspension travel and assisting in the development of a vehicle hauler that will be DOT legal for transportation.

New mechanical team member Evan Maley, 19, is a mechanical engineering sophomore who transferred from Dayton University last year so he could join the BB2 project after interning during high school. He assists with motor testing and dyno set-up as well as administrative activities.

High School Intern Evan Hucek, 18, has been on the team throughout his senior year and will be starting as a freshman at OSU this fall majoring in mechanical engineering. His duties are mainly working on the vehicle's hauling systems and painting.

Oh, and when you stop by to talk to them in the pits, ask the crew why you can power a hydrogen car with urine. No joke. I told you they were visionary.

Note: Photojournalist Louise Ann Noeth is the authoress of the award-winning book, *Bonneville: The Fastest Place on Earth*, a complete historical review of the first 50 years of land speed racing now in its 7th and final printing. Publisher MBI has informed Noeth when the current inventory is sold the book will not be reprinted. For more details and to order, go to: [www.landspeedproductions.biz](http://www.landspeedproductions.biz).



decades. The friendly, orderly crowd would erupt into cheers when someone lit up the tires providing a few screechy moments.

Back at the fairgrounds, I gave a presentation on land speed racing to more than 200 folks. Some came simply to escape the torrent of rain that hit around noon, but most, I discovered, had a genuine interest in the sport.

Afterwards, in booth space kindly provided by the Goodguys, while I signed copies of my book "Bonneville: The Fastest Place on Earth", nearly 100 people stopped by to say they read this column.

The interaction was stunning. Please understand, I am lucky to meet a handful

people right in before my eyes. What a wake-up call. Thank you. All of you. Wow. Geez.

It inspired me to remain vigilant, to do good work and be available to assist where possible.

#### THE UP AND COMING CREWS

It is not uncommon to hear conversation in the Bonneville pits about where the next generation of racers will come from, who will mentor them and what they will bring to the timing lights.

After visiting the Center for Automotive Research(CAR) at Ohio State University (OSU), it was clear to me that

BB2 team chose hydrogen to fuel the streamliner that relies on electric motors to turn the wheels. The car has already set an FIA World Record of 132MPH in Category A, Group 14, Class 3 for fuel cell engines.

What is most important to understand is this visionary vehicle is designed and built entirely by Ohio State University students. Sure, there is faculty oversight, but the crew is intensely motivated. During the summer, many team members work 80 to 100 hours a week on the car.

Last year, BB2 experienced a small over-pressure event in the fuel cells due to the failure of an oxygen delivery regu-

leader in battery research and development. Optimizing technology, what land speed racer hasn't done that?

The BB2 "kids" as some veteran racers might call them, are taking land speed racing to a new level with innovations in driver safety, driveline, electronics and packaging.

Who is this next generation? Let me introduce you: David Cooke is the Team Leader who is entering his fifth year as an undergrad in mechanical engineering and has worked in the CAD group at Honda Research and Development for the past three years. He is responsible for the suc-

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